

Changes in the quality characteristics of white bread made using different shortening formulations during storage

ABSTRACT

The objectives of this study were to determine the effects of different types of refined, bleached and deodorized (RED) palm oil/palm stearin-based shortenings on the quality of white bread. For this purpose, shortenings of seven blends of RBD palm oil (P0) and palm stearin (PS) were used in the bread making experiment. Shortenings were blended in 100:0, 80:20, 60:40, 50:50, 40:60, 20:80 and 0:100 of P0:PS ratios, respectively. The Triacylglycerols (TAG) of shortenings were investigated using high performance liquid chromatography (HPLC). In total, seven formulations of bread were prepared and bread made from 100:0 was used as a control, while those made without shortening were used as comparisons with other formulations. The breads were investigated at ambient temperature and using various aging times with DSC and texture analyzer (TA-XT2) to determine starch retrogradation and crumb firmness, respectively. Triacylglycerols, such as 000, OOP and OOS, were found to decrease, while PPO increased due to the increase in the palm stearin content of the shortenings. During storage, DSC showed one endothermic peak for all aging times. The texture analyzer showed that the bread made from shortening formulation 100:0 had the least crumb firmness, while those made without shortening had the highest crumb firmness.

Keyword: Shortenings; Triacylglycerols; White bread; DSC; Texture